MWH

December 8, 2006

Mr. Kevin Adler, RPM
U.S. Environmental Protection Agency
Region V
Mail Code SR-J6
77 West Jackson Boulevard
Chicago, Illinois 60604-3590

Re: 2006 Residential Well Re-Sampling Results
American Chemical Service NPL Site, Griffith, Indiana

Dear Kevin:

In September 2006, MWH collected samples from five residential wells. The samples were submitted to Compuchem Laboratories of Cary, North Carolina, for analyses. Upon receipt, the data package was forwarded to Laboratory Data Consultants (LDC) of Carlsbad, California, for data validation. The validated laboratory package for these samples was previously provided to the U.S. EPA under separate cover.

The original September sample results reported detections of the volatile organic compounds (VOC) methylene chloride and/or toluene in groundwater samples from all five residential wells. These compounds were determined to be non-detected in the groundwater by LDC because they were also detected in laboratory blank samples. However, acetone and one polychlorinated biphenyl (PCB) compound, Aroclor-1260, were also detected in samples collected from residential well PW-B.

As a precaution, a second set of groundwater samples was collected from PW-B on October 19, 2006. The residential well PW-B is located at 1009 Reder Road. These samples were analyzed for the VOC and chlorinated pesticide/PCB suite of chemicals. No VOCs or pesticide/PCBs were detected in the re-sampled groundwater from PW-B.

Therefore, the detections reported in the September sampling event do not appear to be representative of actual groundwater conditions, as the re-sampling results show these compounds were not present in the October samples. Copies of the validated laboratory package for the October groundwater samples are provided as an attachment to this letter.

Sincerely,

MWH Americas, Inc.

Peter J. Vagt, Ph.D., CPG
Vice President

175 West Jackson Boulevard
Suite 1900
Chicago, Illinois
60604-2814

Tel: 312 831 3000
Fax: 312 831 3999

Attachments: 2006 Validated Residential Well PW-B Analytical Results (Sample Data Group 11287)

Cover letter only is being carbon copied to the following recipients. The data packets will be provided as part of the 3rd Quarter Groundwater Monitoring Report at a future date.

cc: P. Kasarabada, IDEM
Barbara Magel, KW&M, Ltd.

JEF/dpp/pjv/elm
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ACS Residential
Data Validation Reports
LDC# 15715

Volatiles

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS Residential

Collection Date: October 19, 2006

LDC Report Date: November 13, 2006

Matrix: Water

Parameters: Volatiles

Validation Level: EPA Level III & IV

Laboratory: CompuChem

Sample Delivery Group (SDG): 11287

Sample Identification

ACSGWPWBRE28**
TRIP BLANK

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work (SOW) OLC03.2 for Volatiles.

The review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
10/19/06	Acetone	42.3	All samples in SDG 11287	J (all detects) UJ (all non-detects)	A
	1,2-Dibromo-3-chloropropane	31.3		J (all detects) UJ (all non-detects)	

Average relative response factors (RRF) for all volatile target compounds and system monitoring compounds were within validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
10/20/06	Chloromethane	25.5	All samples in SDG 11287	J (all detects) UJ (all non-detects)	A

All of the continuing calibration RRF values were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
VBLKTD	10/21/06	Acetone	5.8 ug/L	ACSGWPWBRE28** TRIP BLANK
VHBLKRM	10/23/06	Acetone	6.4 ug/L	ACSGWPWBRE28** TRIP BLANK

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
TRIP BLANK	Acetone	9.2 ug/L	9.2UB ug/L

Sample "TRIP BLANK" was identified as a trip blank. No volatile contaminants were found in this blank with the following exceptions:

Trip Blank ID	Sampling Date	Compound	Concentration	Associated Samples
TRIP BLANK	10/19/06	Methylene chloride Acetone Chloroform 2-Butanone cis-1,2-Dichloroethene Trichloroethene Tetrachloroethene	0.49 ug/L 9.2 ug/L 0.17 ug/L 40 ug/L 0.16 ug/L 0.18 ug/L 0.11 ug/L	ACSGWPWBRE28**

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples (%R) was not required by the method.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

All tentatively identified compounds were within validation criteria for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XIV. System Performance

The system performance was acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XV. Overall Assessment of Data

Data flags have been summarized at the end of the report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

ACS Residential
Volatiles - Data Qualification Summary - SDG 11287

SDG	Sample	Compound	Flag	A or P	Reason
11287	ACSGWPWBRE28** TRIP BLANK	Acetone 1,2-Dibromo-3-chloropropane	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Initial calibration (%RSD)
11287	ACSGWPWBRE28** TRIP BLANK	Chloromethane	J (all detects) UJ (all non-detects)	A	Continuing calibration (%D)

ACS Residential
Volatiles - Laboratory Blank Data Qualification Summary - SDG 11287

SDG	Sample	Compound TIC (RT in minutes)	Modified Final Concentration	A or P
11287	TRIP BLANK	Acetone	9.2UB ug/L	A

ACS Residential
Volatiles - Field Blank Data Qualification Summary - SDG 11287

No Sample Data Qualified in this SDG

1LCA
LOW CONCENTRATION WATER VOLATILE ORGANICS ANALYSIS
DATA SHEET

EPA SAMPLE NO.

ACSGWPWBRE28

Lab Name: COMPUCHEM Contract: OLC03-REVS

Lab Code: LIBRTY Case No.: Client No.: SDG No.: 11287

Lab Sample ID: 1128701 Date Received: 10/20/2006

Lab File ID: 1128701A71 Date Analyzed: 10/21/2006

Purge Volume: 25.0(ML) Dilution Factor: 1.0

GC Column: SPB-624 ID: 0.32(MM) Length: 60.0(M)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (UG/L)	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U UJ
75-01-4	Vinyl Chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U UJ
75-15-0	Carbon Disulfide	0.50	U
79-20-9	Methyl Acetate	0.50	U
75-09-2	Methylene Chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-Butyl Ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon Tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

11/14/06

1LCB
LOW CONCENTRATION WATER VOLATILE ORGANICS ANALYSIS
DATA SHEET

EPA SAMPLE NO.

ACSGWPWBRE28

Lab Name: COMPUCHEM Contract: OLC03-REVS

Lab Code: LIBRTY Case No.: Client No.: SDG No.: 11287

Lab Sample ID: 1128701 Date Received: 10/20/2006

Lab File ID: 1128701A71 Date Analyzed: 10/21/2006

Purge Volume: 25.0(ML) Dilution Factor: 1.0

GC Column: SPB-624 ID: 0.32(MM) Length: 60.0(M)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (UG/L)	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
1330-20-7	Xylene (Total)	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-Chloropropane	0.50	U UJ
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

11/14/06

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LOW CONCENTRATION WATER VOLATILE ORGANICS ANALYSIS
DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

ACSGWPWBRE28

Lab Name: COMPUCHEM Contract: OLC03-REVS

Lab Code: LIBRTY Case No.: Client No.: SDG No.: 11287

Lab Sample ID: 1128701 Date Received: 10/20/2006

Lab File ID: 1128701A71 Date Analyzed: 10/21/2006

Purge Volume: 25.0(ML) Dilution Factor: 1.0

GC Column: SPB-624 ID: 0.32(MM) Length: 60.0(M)

Number TICs found: 0

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (UG/L)	Q
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FORM I LCV-TIC OLC03.2

11/14/06

1LCA
LOW CONCENTRATION WATER VOLATILE ORGANICS ANALYSIS
DATA SHEET

EPA SAMPLE NO.

TRIPBLANK

Lab Name: COMPUCHEM Contract: OLC03-REVS

Lab Code: LIBRTY Case No.: Client No.: SDG No.: 11287

Lab Sample ID: 1128702 Date Received: 10/20/2006

Lab File ID: 1128702A71 Date Analyzed: 10/21/2006

Purge Volume: 25.0(ML) Dilution Factor: 1.0

GC Column: SPB-624 ID: 0.32(MM) Length: 60.0(M)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (UG/L)	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U UJ
75-01-4	Vinyl Chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	9.2	B UBJ
75-15-0	Carbon Disulfide	0.50	U
79-20-9	Methyl Acetate	0.50	U
75-09-2	Methylene Chloride	0.49	J
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-Butyl Ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.16	J
78-93-3	2-Butanone	40	
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.17	J
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon Tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

11/14/06

1LCB

LOW CONCENTRATION WATER VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TRIPBLANK

Lab Name: COMPUCHEM Contract: OLC03-REVS

Lab Code: LIBRTY Case No.: Client No.: SDG No.: 11287

Lab Sample ID: 1128702 Date Received: 10/20/2006

Lab File ID: 1128702A71 Date Analyzed: 10/21/2006

Purge Volume: 25.0(ML) Dilution Factor: 1.0

GC Column: SPB-624 ID: 0.32(MM) Length: 60.0(M)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (UG/L)	Q
79-01-6	Trichloroethene	0.18	J
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-Pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.11	J
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
1330-20-7	Xylene (Total)	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-Chloropropane	0.50	U UJ
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

11/14/07

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LOW CONCENTRATION WATER VOLATILE ORGANICS ANALYSIS
DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIPBLANK

Lab Name: COMPUCHEM Contract: OLC03-REVS

Lab Code: LIBRTY Case No.: Client No.: SDG No.: 11287

Lab Sample ID: 1128702 Date Received: 10/20/2006

Lab File ID: 1128702A71 Date Analyzed: 10/21/2006

Purge Volume: 25.0(ML) Dilution Factor: 1.0

GC Column: SPB-624 ID: 0.32(MM) Length: 60.0(M)

Number TICs found: 0

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC. (UG/L)	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
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11/14/07

LDC #: 15715A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/7/06
SDG #: 11287 Level III/IV Page: 1 of 1
Laboratory: CompuChem Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW OLM03.2)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 10/19/06
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	
IV.	Continuing calibration	SW	
V.	Blanks	SW	
VI.	Surrogate spikes	A	client specified
VII.	Matrix spike/Matrix spike duplicates	N	~~MS/D required by method~~ not required by method
VIII.	Laboratory control samples	N	
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	SW	TB = 2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

1	ACSGWPWBRE28**	11	VBLKTI7	21		31	
2	TRIP BLANK	12	VBLKTJ	22		32	
3		13	VHBLKRM (storage Blk)	23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 15715A1
SDG #: 11287

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Method: Volatiles (EPA CLP SOW OLC03.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) > 0.05?		✓		
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) < 30% and relative response factors (RRF) > 0.05?		✓		
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
VI. Deuterated Monitoring Compound spikes				
Were all Deuterated Monitoring Compound (DMC) %R within QC limits?	✓			
If the percent recovery (%R) for one or more DMC was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?		✓	1	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?			X	
Was an LCS analyzed per analytical batch?			X	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?			X	

LDC #: 15715A1
SDG #: 11287

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			X	
Were the performance evaluation (PE) samples within the acceptance limits?			X	
X. Internal standards				
Were internal standard area counts within +/-40% from the associated calibration standard?	✓			
Were retention times within +/- 20.0 seconds from the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?			✓	
Did compound spectra meet specified EPA "Functional Guidelines" criteria?			✓	
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?			✓	
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 25 percent relative intensity) in the reference spectrum evaluated in sample spectrum?	✓			
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?	✓			
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA CLP SOW ~~OLM04.2~~ OLC03.2)

A. Chloromethane*	Q. 1,2-Dichloropropane**	GG. Xylenes, total	WW. Bromobenzene	MMM. Naphthalene
B. Bromomethane	R. cis-1,3-Dichloropropene	HH. Vinyl acetate	XX. 1,2,3-Trichloropropane	NNN. 1,2,3-Trichlorobenzene
C. Vinyl choride**	S. Trichloroethene	II. 2-Chloroethylvinyl ether	YY. n-Propylbenzene	OOO. 1,3,5-Trichlorobenzene
D. Chloroethane	T. Dibromochloromethane	JJ. Dichlorodifluoromethane	ZZ. 2-Chlorotoluene	PPP. trans-1,2-Dichloroethene
E. Methylene chloride	U. 1,1,2-Trichloroethane	KK. Trichlorofluoromethane	AAA. 1,3,5-Trimethylbenzene	QQQ. cis-1,2-Dichloroethene
F. Acetone	V. Benzene	LL. Methyl-tert-butyl ether	BBB. 4-Chlorotoluene	RRR. m,p-Xylenes
G. Carbon disulfide	W. trans-1,3-Dichloropropene	MM. 1,2-Dibromo-3-chloropropane	CCC. tert-Butylbenzene	SSS. o-Xylene
H. 1,1-Dichloroethene**	X. Bromoform*	NN. Diethyl ether	DDD. 1,2,4-Trimethylbenzene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane
I. 1,1-Dichloroethane*	Y. 4-Methyl-2-pentanone	OO. 2,2-Dichloropropane	EEE. sec-Butylbenzene	UUU. Benzyl chloride
J. 1,2-Dichloroethene, total	Z. 2-Hexanone	PP. Bromochloromethane	FFF. 1,3-Dichlorobenzene	VVV. 4-Ethyltoluene
K. Chloroform**	AA. Tetrachloroethene	QQ. 1,1-Dichloropropene	GGG. p-Isopropyltoluene	WWW. Ethanol
L. 1,2-Dichloroethane	BB. 1,1,2,2-Tetrachloroethane*	RR. Dibromomethane	HHH. 1,4-Dichlorobenzene	XXX. Ethyl ether
M. 2-Butanone	CC. Toluene**	SS. 1,3-Dichloropropane	III. n-Butylbenzene	
N. 1,1,1-Trichloroethane	DD. Chlorobenzene*	TT. 1,2-Dibromoethane	JJJ. 1,2-Dichlorobenzene	
O. Carbon tetrachloride	EE. Ethylbenzene**	UU. 1,1,1,2-Tetrachloroethane	KKK. 1,2,4-Trichlorobenzene	
P. Bromodichloromethane	FF. Styrene	VV. Isopropylbenzene	LLL. Hexachlorobutadiene	

* = System performance check compounds (SPCC) for RRF ; ** = Calibration check compounds (CCC) for %RSD.

Notes:_____

LDC #: 15715A1
SDG #: 11287

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Page: 1 of 1
Reviewer: B
2nd Reviewer: R

METHOD: GC/MS VOA (EPA CLP SOW ~~OLM04.2~~ OLC03.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Did the laboratory perform a 5 point calibration prior to sample analysis?
Y N N/A Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %RSD (Limit: ≤30.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	10/19/06	ICAL	F	42.3		All + Blk	J/UJ/A
			MM	31.3		↓	↓

INICAL.1C4

LDC #: 15715A1
SDG #: 11287

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: B
2nd Reviewer: S

METHOD: GC/MS VOA (EPA CLP SOW ~~OLM04~~ OLC03.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	10/20/06	CCV	A	25.5		All + Blk	J/UJ/A
	2326						

LDC #: 15715A1
SDG #: 11287 OLC03.2

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 6 of 7
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW ~~OLM04.2~~)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank associated with every sample in this SDG?
Y N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
Y N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 10/21/06, 10/23/06
Conc. units: ug/L
Associated Samples: 1, 2

Compound	Blank ID		Blank	Sample Identification						
	VBLKTD	~~2~~	VHBLKRM		2					
~~Methylene chloride~~										
Acetone	5.8	~~9.2~~/UB	6.4		9.2/UB					
CRQL										
TICs:										
Hexamethyl-cyclotrisiloxane										
Octamethyl-cyclotetrasiloxane										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 15715A1
SDG #: 11287 OLC03.2

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: A
2nd Reviewer: R

METHOD: GC/MS VOA (EPA CLP SOW ~~OLM04.2~~)

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 10/19/06
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other:_____ Associated Samples: 1 (ND)

Compound	Blank ID	Sample Identification								
	2									
Methylene chloride	0.49									
Acetone	9.2									
Chloroform	0.17									
M	40									
QQQ	0.16									
S	0.18									
CRQL AA	0.11									

Blank units:_____ **Associated sample units:**_____
Sampling date:_____
Field blank type: (circle one) Field Blank / Rinsate / Trip Blank / Other:_____ Associated Samples:_____

Compound	Blank ID	Sample Identification								
Methylene chloride										
Acetone										
Chloroform										
CRQL										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as Methylene chloride, Acetone, 2-Butanone and Carbon disulfide that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 15715A1
SDG #: 11287

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW ~~OLM04.2~~ OLC03.2)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (1.25 std)	Recalculated RRF (1.25 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	10/19/06	Methylene chloride (1st internal standard)	0.210	0.210	0.219	0.219	3.0	3.0
			~~Trichloroethene~~ Ethyl Benzene (2nd internal standard)	1.843	1.843	1.710	1.710	13.0	13.0
			~~Toluene~~ 1,2-Dichlorobenzene (3rd internal standard)	1.284	1.284	1.241	1.241	5.0	5.0
2			Methylene chloride (1st internal standard)						
			Trichloroethene (2nd internal standard)						
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichloroethene (2nd internal standard)						
			Toluene (3rd internal standard)						
4			Methylene chloride (1st internal standard)						
			Trichloroethene (2nd internal standard)						
			Toluene (3rd internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 15715A1
SDG #: 11287

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA CLP SOW ~~OLM04.2~~ OLC03.2)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (Initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	CCV	10/20/06	Methylene chloride (1st internal standard)	0.219	0.198	0.198	9.6	9.6
			~~Trichloroethene~~ Ethyl Benzene (2nd internal standard)	1.710	1.780	1.780	4.1	4.1
			~~Toluene~~ 1,2-Dichlorobenzene (3rd internal standard)	1.241	1.195	1.195	3.7	3.7
2			Methylene chloride (1st internal standard)					
			Trichloroethene (2nd internal standard)					
			Toluene (3rd internal standard)					
3			Methylene chloride (1st internal standard)					
			Trichloroethene (2nd internal standard)					
			Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
			Trichloroethene (2nd internal standard)					
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 15715A1
SDG #: 11287

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

OLC03.2

Page: 1 of 1
Reviewer:
2nd reviewer:

METHOD: GC/MS VOA (EPA CLP SOW ~~OLM04.2~~)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #1

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
~~Toluene-d8~~ vinyl chloride-d3	5.0	5.4	108	108	0
~~Bromofluorobenzene~~ chloroethane-d5	↓	5.1	102	102	↓
~~1,2-Dichloroethane-d4~~ 1,1-Dichloroethene-d2	↓	4.2	84	84	↓

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
~~Toluene-d8~~ 2-Butanone-d5	5.0	6.0	120	120	0
~~Bromofluorobenzene~~ chloroform-d	↓	5.2	104	104	↓
~~1,2-Dichloroethane-d4~~ 1,2-Dichloroethane-d4	↓	5.0	100	100	↓

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
~~Toluene-d8~~ Benzene-d6	5.0	5.2	104	104	0
~~Bromofluorobenzene~~					
1,2-~~Dichloroethane-d4~~					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					

LDC #: 15715A1
SDG #: 11287

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: A
2nd reviewer: A

OLC03.2

METHOD: GC/MS VOA (EPA CLP SOW ~~OLM04.2~~)

Y N N/A Were all reported results recalculated and verified for all level IV samples?

Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

$$\text{Concentration} = \frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. _____, _____:

Conc. = (_____)(_____)(_____)
(_____)(_____)(_____)(_____)
= ND

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

ACS Residential
Data Validation Reports
LDC# 15715

Chlorinated Pesticides & PCBs

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: ACS Residential

Collection Date: October 19, 2006

LDC Report Date: November 13, 2006

Matrix: Water

Parameters: Chlorinated Pesticides & PCBs

Validation Level: EPA Level IV

Laboratory: CompuChem

Sample Delivery Group (SDG): 11287

Sample Identification

ACSGWPWBRE28

Introduction

This data review covers one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Contract Laboratory Program Statement of Work OLC03.2 for Chlorinated Pesticides and PCBs.

The review follows the Remedial Design/Remedial Action PRP - Lead Project Quality Assurance Project Plan (November 2001, Rev. 0) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the method stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blank results are summarized in Section V.

Field duplicates are summarized in Section XIV.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

N Presumptive evidence of presence of the constituent.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

B Compound or analyte was positively detected in a sample and in an associated blank.

UB Compound or analyte is not detected at or above the indicated concentration due to blank contamination.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/ECD Instrument Performance Check

A Resolution check mixture was analyzed at the beginning of the initial calibration sequence on each GC column. The resolution between adjacent peaks of required compounds was greater than or equal to 60% .

Performance evaluation mixtures (PEM) were analyzed at the proper frequency. The resolution between adjacent peaks was 90% on both GC columns. The absolute retention times for the initial and continuing PEMs were within the calculated retention time windows based on the three-point initial calibration.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 20.0% and the combined breakdowns were less than or equal to 30.0% .

The relative percent difference (RPD) of amount in PEMs were within 25.0% QC limits.

III. Initial Calibration

Initial calibration sequence was followed as required.

Initial calibration of single and multicomponent compounds was performed for both columns at proper frequencies.

The retention time windows were established according to the method.

The percent relative standard deviations (%RSD) of calibration factors for selected single component compounds were within the 20.0% QC limits for selected compounds and were within the 25.0% QC limits for alpha-BHC and beta-BHC .

All required peaks for multicomponent compounds were present.

IV. Continuing Calibration

Continuing calibration sequence was followed as required. No more than 12 hours elapsed between continuing calibration analyses in an analytical sequence.

The retention times (RT) of all compounds in Individual Mix and multicomponent standards were within QC limits.

The relative percent differences (RPD) of amount in Individual Mix standards were within the 25.0% QC limits.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide or PCB contaminants were found in the method blanks.

Instrument blank analyses were performed at the required frequencies. No chlorinated pesticide or PCB contaminants were found in the instrument blanks.

No field blanks were identified in this SDG.

VI. Surrogate Spikes

Surrogates were added to all samples, standards and blanks as required by the SOW. All surrogate recoveries (%R) were within QC limits of 30-150% with the following exceptions:

Sample	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
ACSGWPWBRE28	RTXCLPI	Decachlorobiphenyl	158 (30-150)	All TCL compounds	J (all detects)	P
ACSGWPWBRE28	RTXCLPII	Decachlorobiphenyl	156 (30-150)	All TCL compounds	J (all detects)	P

The retention times for surrogates were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Although laboratory control samples were not required by the method, laboratory control samples were reported by the laboratory. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Pesticide Cleanup Checks

a. Florisil Cartridge Check

Florisil cartridge checks were performed at the required frequency and all compounds were within the 80-120% recovery QC criteria.

b. GPC Calibration

GPC cleanup is not required for water samples and was not performed.

XI. Target Compound Identification

All target compound identifications were within validation criteria.

XII. Compound Quantitation and Reported CRQLs

All compound quantitation and reported CRQLs were within validation criteria.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIV. Field Duplicates

No field duplicates were identified in this SDG.

ACS Residential
Chlorinated Pesticides & PCBs - Data Qualification Summary - SDG 11287

SDG	Sample	Compound	Flag	A or P	Reason
11287	ACSGWPWBRE28	All TCL compounds	J (all detects)	P	Surrogate recovery (%R)

ACS Residential
Chlorinated Pesticides & PCBs - Laboratory Blank Data Qualification Summary - SDG 11287

No Sample Data Qualified in this SDG

ACS Residential
Chlorinated Pesticides & PCBs - Field Blank Data Qualification Summary - SDG 11287

No Sample Data Qualified in this SDG

1LCE
LOW CONCENTRATION WATER PESTICIDE ORGANICS ANALYSIS
DATA SHEET

EPA SAMPLE NO.

ACSGWPWBRE28

Lab Name: COMPUCHEM Contract: OLC03-REVS

Lab Code: LIBRTY Case No.: Client No.: SDG No.: 11287

Lab Sample ID: 1128701 Date Received: 10/20/2006

Sample Volume: 1100(ML) Date Extracted: 10/21/2006

Concentrated Extract Volume: 2000(UL) Date Analyzed: 10/27/2006

Injection Volume: 1.0(UL) Dilution Factor: 1.0

Sulfur Cleanup: (Y/N) Y Extraction: (Sepf/Cont) SEPF

CAS NO.	COMPOUND	CONCENTRATION UNITS: (UG/L)	Q
319-84-6	alpha-BHC	0.010	U
319-85-7	beta-BHC	0.010	U
319-86-8	delta-BHC	0.010	U
58-89-9	gamma-BHC (Lindane)	0.010	U
76-44-8	Heptachlor	0.010	U
309-00-2	Aldrin	0.010	U
1024-57-3	Heptachlor epoxide	0.010	U
959-98-8	Endosulfan I	0.010	U
60-57-1	Dieldrin	0.020	U
72-55-9	4,4'-DDE	0.020	U
72-20-8	Endrin	0.020	U
33213-65-9	Endosulfan II	0.020	U
72-54-8	4,4'-DDD	0.020	U
1031-07-8	Endosulfan sulfate	0.020	U
50-29-3	4,4'-DDT	0.020	U
72-43-5	Methoxychlor	0.10	U
53494-70-5	Endrin ketone	0.020	U
7421-93-4	Endrin aldehyde	0.020	U
5103-71-9	alpha-Chlordane	0.010	U
5103-74-2	gamma-Chlordane	0.010	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.20	U
11104-28-2	Aroclor-1221	0.40	U
11141-16-5	Aroclor-1232	0.20	U
53469-21-9	Aroclor-1242	0.20	U
12672-29-6	Aroclor-1248	0.20	U
11097-69-1	Aroclor-1254	0.20	U
11096-82-5	Aroclor-1260	0.20	U

11/14/06

LDC #: 15715A3 **VALIDATION COMPLETENESS WORKSHEET** Date: 11/7/06
SDG #: 11287 Level IV Page: 1 of 1
Laboratory: CompuChem Reviewer:
2nd Reviewer:

METHOD: GC Chlorinated Pesticides/PCBs (EPA CLP SOW OLC03.2)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 10/19/06
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	%RSD ≤ 20% except alpha + delta BHC ≤ 25%
IV.	Continuing calibration	A	%D ≤ 25%
V.	Blanks	A	
VI.	Surrogate spikes	SW	client specified
VII.	Matrix spike/Matrix spike duplicates	N	~~one/p~~ (required by method)
VIII.	Laboratory control samples	A	LCS ID
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	A	
Xb.	GPC Calibration	N	
XI.	Target compound identification	A	
XII.	Compound quantitation and reported CRQLs	A	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: water

1	ACSGWPWBRE28	11	PBLKOM	21		31	
2		12	P1BLK05	22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

22, 27

VALIDATION FINDINGS WORKSHEET

METHOD: Pesticide/PCBs (EPA CLP SOW OLM04.2)

A. alpha-BHC	I. Dieldrin	Q. Endrin ketone	Y. Aroclor-1242	GG.
B. beta-BHC	J. 4,4'-DDE	R. Endrin aldehyde	Z. Aroclor-1248	HH.
C. delta-BHC	K. Endrin	S. alpha-Chlordane	AA. Aroclor-1254	II.
D. gamma-BHC	L. Endosulfan II	T. gamma-Chlordane	BB. Aroclor-1260	JJ.
E. Heptachlor	M. 4,4'-DDD	U. Toxaphene	CC. DB 608	KK.
F. Aldrin	N. Endosulfan sulfate	V. Aroclor-1016	DD. DB 1701	LL.
G. Heptachlor epoxide	O. 4,4'-DDT	W. Aroclor-1221	EE.	MM.
H. Endosulfan I	P. Methoxychlor	X. Aroclor-1232	FF.	NN.

Notes: _____

LDC #: 15715A3
SDG #: 11287

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: [illegible]
2nd Reviewer: [illegible]

OLM03.2
4.1

Method: Pesticides/PCBs (EPA CLP SOW OLM03.1)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/ECD instrument performance check				
Was a Resolution Check Mixture analyzed at the proper frequency?	✓			
Was the resolution between two adjacent peaks ≥ 60%?	✓			
Were Performance Evaluation Mixtures (PEM) analyzed at the proper frequency?	✓			
Were the retention times of all peaks in the PEMs within the RT windows?	✓			
Was the %D for each compound in the PEM ≤ 25%?	✓			
Were the individual endrin and 4,4'-DDT breakdowns ≤ 20%?	✓			
Were the combined endrin and 4,4'-DDT breakdowns ≤ 30%?	✓			
Was there 90% resolution between adjacent peaks in the PEM?	✓			
III. Initial calibration				
Was the initial calibration performed at the required frequency?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20% Individual Mix A and Individual Mix B except alaph-BHC and delta-BHC ≤ 25%?	✓			
Were single and multi-component standards calibrated at the proper concentrations?	✓			
Were the retention time windows established properly for all single component analytes?	✓			
Were multi-component target compounds calibration properly (RTs and CFs for proper number of peaks)?	✓			
Was the resolution ≥ 90% between adjacent peaks in the mid-point Individual Mix A and Individual Mix B standards?	✓			
IV. Continuing calibration				
Were Individual Mix A, Individual Mix B and multicomponent standards analyzed at the proper frequency?	✓			
Was the (%D) for each compound in the Individual Mix A and Individual Mix B standards ≤ 25%?	✓			
Were the retention times (RTs) of all peaks in Individual Mix A, Individual Mix B and multicomponent standards within the RT windows?	✓			
Were the standards analyzed at the proper concentrations?	✓			
Was the resolution ≥ 90% between adjacent peaks in the mid-point Individual Mix A and Individual Mix B standards?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			

LDC #: 15715A3
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VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
Was a GPC calibration performed when a clean-up was performed? If no GPC calibration was performed, this is a protocol violation. Refer to the overall assessment worksheet for possible matrix interference findings.		✓		
Was a GPC calibration and clean-up performed for the water samples? (Not required)		✓		
Were the GPC calibration check percent recoveries (%R) within the 80-110% QC limits?		✓		
Did the Aroclor 1260 standard match the apporpiate standard patterns?	✓			
XII. Target compound identification				
Were the retention times of reported detects within the RT windows?			✓	
Were non-detected compounds reported properly?	✓			
Did the relative height ratios of detected multi-component target compounds match those in the standard?	✓			
Was a GC/MS analysis performed for extract concentrations over 10ng/uL?	•		✓	
XIII. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions, dry weight factors, and clean-up activities applicable to level IV validation?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XVII. Field blanks				
Field blanks were identified in this SDG.		✓		
Target compounds were detected in the field blanks.			✓	

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VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA CLP SOW OLM04.2)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as N/A.

Y N N/A Were surrogates spiked into all samples, standards and blanks?
Y N N/A Were all TCX and DCB surrogate recoveries within advisory QC limits of 30-150% on each column.

Level IV/D ONLY

Y N N/A Were surrogate retention times (RTs) on each column within the established RT windows for all samples, standards and blanks?

#	Date	Lab ID/Reference	Column	Surrogate %R (Limits 30-150%) TCX	Surrogate %R (Limits 30-150%) DCB	Associated Samples	Qualifications
		1	RTX cup 1		158 (30-150)		J/P det
			RTX cup 2		156 (30-150)		↓

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Comments: _____

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VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

OLM03.2

METHOD: GC ✓ HPLC ____

The calibration Factor (CF), average CF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

A = Area of compound,
C = Concentration of compound,
S = Standard deviation of the CF
X = Mean of the CFs

#	Standard ID	Calibration Date	Compound	Reported CF (0.02 std)	Recalculated CF (0.02 std)	Reported Average CF (initial)	Recalculated Average CF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	10/16/06 RTX CLP1	endosulfan I	412750	412750	412325	412325	8.4	8.4
			methoxychlor	157690	157690	159677	159677	13.7	13.7
2		CLP2	↓	452400	452400	451800	451800	11.1	11.1
				147290	147290	~~155756~~ 149689	149689	17.2	17.2
3		10/26/06 CLP1	↓	355590	355550	360108	360108	11.1	11.1
				130825	130825	134893	134893	14.9	14.9
4		CLP2	↓	333000	333000	337721	337721	6.7	6.7
			↓	114255	114255	116778	116778	13.1	13.1

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 15715A3
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VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

OLM03.2

METHOD: GC_____HPLC_____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF - CF)/ave. CF
CF = A/C

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(ical)/ CCV Conc.	Reported CF/Conc. CCV	Recalculated CF/Conc. CCV	Reported %D	Recalculated %D
1	CCV	10/27/06	endosulfan I	0.020	0.020	0.020	0	0
			methoxychlor	0.200	0.204	0.204	2.0	2.0
			↓	0.020	0.021	0.021	5.0	5.0
2			↓	0.200	0.205	0.205	2.5	2.5
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 15715A3
SDG #: 11287

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA CLP SOW OLM04.2)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #1

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene	RLP PEST1	0.02	~~0.028814~~ 43.7 0.028745	144	144	0
Decachlorobiphenyl	↓	↓	0.031656	158	158	0
Decachlorobiphenyl						

Sample ID: #1

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene	RTX CLP II	0.02	0.029340	147	147	0
Decachlorobiphenyl	↓	↓	0.089377	156	156	0
Decachlorobiphenyl						

Sample ID: _____

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Sample ID: _____

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Notes: _____

LDC #: 157153
SDG #: 11287

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA CLP SOW OLM04.2)

The percent recoveries (%R) and Relative Percent difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100* (SSC-SC)/SA

Where: SSC = Spiked sample concentration
SA = Spike added
SC = Concentration

RPD = | LCS - LCSD | * 2/(LCS + LCSD)

LCS = Laboratory control sample percent recovery
LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: POMLCS

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	-	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Gamma-BHC	0.10	0.10	0	0.058	0.061	58	58	61	61	not reported	5
Heptachlor	↓	↓		0.064	0.065	64	64	65	65		2
~~Aldrin~~ Dieldrin	0.20	0.20		0.13	0.13	65	65	65	65		0
Dieldrin ~~4,4'-DDE~~	0.20			0.12	0.12	60	60	60	60		0
Endrin Endrin	0.20			0.15	0.14	75	75	70	70		7
~~4,4'-DDT~~											

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 15715A3
SDG #: 11287

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA CLP SOW OLM04.2)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(V_t)(DF)(GPC)}{(CF)(V_o)(V_i)(\%S)}$

A_x	=	Area or height of the peak for the compound to be measured
CF	=	Calibration factor for the mid point concentration
V_o	=	Volume of or weight of sample extracted in milliliters (ml) or grams (G)
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
DF	=	Dilution factor.
%S	=	Percent solids, applicable to soils and solids matrices only. (For water, %S=1)
GPC	*	2 (for soils), 1 (for waters)
Note	:	For multi-peak compounds such as Aroclors or Toxaphene, 3 to 5 major peaks were used for quantitation.

Example:

Sample I.D. _____ _____:

Conc. = (_____) / ( )

= all ND

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

Note: _____